



IB MYP Year 5
Year 10 Mathematics
Assessment #3



TRIGONOMETRIC PATTERNS

Unit Question: How do we get around? aTeachers: Ms. Luk & Mr. Slosberg
End Date: March 15, 2013 Time Allowed: Double Lesson
Concept Statement: The student will discover one or two formulas which will be useful in the future.

The objective of this task is discover a useful formula for finding out new trig. values from old ones.

IN YOUR BOOK:

- ◆ **New Trends Mathematics**, Chapter 3 & 9 on Trigonometry

INSTRUCTIONS:

- ◆ Read the **instructions** and **rubric** carefully.
- ◆ Show all **steps** and proper **units**.
- ◆ Submit **your own work**. Any copying or other cheating, will automatically receive a 0.
- ◆ You are allowed to use non-electronic **dictionary**.
- ◆ **Calculators** are allowed.

ASSESSMENT:

- ◆ Read the criteria descriptors on the next page carefully before you start your work. This will give you a clear understanding of what is required and what a quality piece of work for this task must include. This way you give yourself the best chance of achieving the highest level in this task.
- ◆ This task assesses Criteria B.

CRITERION B: INVESTIGATING PATTERNS

Achievement level	Task Specific Rubric	IBO Published Descriptor	Student's Self-Evaluation
0	The student does not reach a standard described by any of the descriptors given below.	The student does not reach a standard described by any of the descriptors given below.	(0-8)
1-2 Do Maths	The student can calculate trigonometric values correctly.	The student applies, with some guidance , mathematical problem-solving techniques to recognize simple patterns.	
3-4 General Rule	The student comes up with a general rule relating the trigonometric ratios.	The student applies mathematical problem-solving techniques to recognize patterns, and suggests relationships or general rules.	Teacher's Final Grade
5-6 Test it	The student tests their general rule by taking a few more examples.	The student selects and applies mathematical problem-solving techniques to recognize patterns, describes them as relationships or general rules, and draws conclusions consistent with findings.	(0-8)
7-8 Prove it	The student explains how certain they are that they are right and why.	The student selects and applies mathematical problem-solving techniques to recognize patterns, describes them as relationships or general rules, draws the correct conclusions consistent with the correct findings, and provides justifications or proofs .	

ASSESSMENT

Level 1-2

1. Given the following expressions, evaluate

- a. $\sin(x)$
- b. $\sin(2x)$
- c. $\sin^2(x)$
- d. $\cos(x)$
- e. $\cos(2x)$
- f. $\cos^2(x)$

for $x = 30^\circ, 150^\circ, 240^\circ, 330^\circ$.

Level 3-4

2. Organize the data you found from question 1.

3. Describe a general rule you found involving either $\sin(2x)$ or $\cos(2x)$

Level 5-6

4. Suggest another example or two to make certain it is right.

Level 7-8

5. Test your pattern with other methods/identities, justify your formula(s) and give limitations if there's any.

~ End of Assessment ~